

**REMARKS**

Initially, Applicant expresses appreciation to the Examiner for the detailed Official Action provided. Furthermore, Applicant expresses appreciation to the Examiner for the acknowledgment of Applicant's Claim for Priority and Receipt of the certified copies of the priority documents.

Additionally, Applicant further expresses appreciation for the acknowledgment of Applicant's Information Disclosure Statements (IDSs) filed on January 30, 2009, February 25, 2008, and August 10, 2006. However, with respect to Applicant's IDSs, Applicant notes that the Examiner has indicated that certain foreign patent documents listed in Applicant's IDSs filed on January 30, 2009 and August 10, 2006 have not been considered. In response to such indications, Applicant contacted the Examiner, via telephone, on November 23, 2009. During the telephone discussion, the Examiner indicated that the foreign patent documents were not considered because they did not include English language Abstracts and/or translations. In this regard, Applicant notes that the three foreign patent documents that were submitted in the IDS dated January 30, 2009 were submitted concurrently with U.S. patent family members, and thus, Applicant believes that translations are unnecessary. Furthermore, with respect to the IDS dated August 10, 2006, Applicant notes that three of the five foreign patent documents that were not considered were submitted concurrently with U.S. patent family members while the other two of the five foreign patent documents that were not considered were submitted with English language computer translations. Accordingly, at least in view of the above, Applicant respectfully requests the Examiner to consider each and every

document listed on the IDSs filed on January 30, 2009 and August 10, 2006 and to indicate the same.

Upon entry of the present paper, claims 4 and 6-10 will have been cancelled without prejudice or disclaimer of the subject matter thereof. The herein-contained amendments should not be considered an indication of Applicant's acquiescence as to the propriety of the outstanding rejection. Rather, Applicant has cancelled claims 4 and 6-10 in order to expedite prosecution of the present application to allowance. In this regard, Applicant expressly reserves the right to file a continuing application directed to the subject matter of the canceled claims. Upon entry of the present paper, claims 1-3 and 5 are pending in the present application, with claims 1 and 5 being in independent form.

Applicant addresses the objection and rejections provided within the Official Action below and respectfully requests reconsideration and withdrawal of the outstanding objection and rejections pending in the present application together with an indication of the allowability of claims 1-3 and 5 (*i.e.*, all pending claims) in the next Official communication. Such action is respectfully requested and is believed to be appropriate for at least the reasons provided below.

### **Objections to the Drawings**

In the outstanding Official Action, the drawings are objected to. Specifically, it is asserted that Figure 9 should be designated by a legend, such as "Prior Art," because only that which is old is illustrated.

Upon entry of the present paper, in order to expedite prosecution of the present application, the drawings will have been amended in accordance with the Examiner's suggestion. That is, one replacement sheet for drawing Figure 9, in which Figure 9 has

been amended to include a “Prior Art” legend, is submitted concurrently herewith. Accordingly, Applicant submits that the grounds for the objection to the drawings no longer exists, and thus, respectfully requests withdrawal thereof in the next Official communication.

**35 U.S.C. § 101 Claim Rejections**

In the outstanding Official Action, claims 7-10 are rejected under 35 U.S.C. § 101 as allegedly being not supported by either a process, machine, manufacture, composition of matter, asserted utility, or well established utility.

Upon entry of the present paper, without acquiescing in the propriety of the rejection and solely to expedite prosecution of the application to allowance, claims 7-10 will have been cancelled. Thus, Applicant submits that the grounds for the above-captioned rejection are moot and respectfully requests withdrawal thereof in the next Official communication.

**35 U.S.C. § 112, First Paragraph, Claim Rejections**

Claims 8-10 are rejected under 35 U.S.C. § 112, first paragraph, as being allegedly not supported by either a physical “thing,” a well asserted utility, or a well established utility.

As noted above, upon entry of the present paper, without acquiescing in the propriety of the rejection and solely to expedite prosecution of the application to allowance, claims 8-10 will have been cancelled. Thus, Applicant submits that the grounds for the above-captioned rejection are moot and respectfully requests withdrawal thereof in the next Official communication.

**35 U.S.C. § 103 Rejection of Claims 4, 6, 8, and 10**

Claims 4, 6, 8, and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over MCVEY in view of U.S. Pat. Appl. Pub. No. 2005/0169402 to Niwa et al. (hereinafter “NIWA”).

In this regard, upon entry of the present paper, without acquiescing in the propriety of the rejection and solely to expedite prosecution of the application to allowance, claims 4, 6, 8, and 10 will have been cancelled. Thus, Applicant submits that the grounds for the above-captioned rejection are moot and respectfully requests withdrawal thereof in the next Official communication.

**35 U.S.C. § 103 Rejection of Claims 1-3, 5, 7, and 9**

Lastly, claims 1-3, 5, 7, and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over European Pat. Appl. EP 1,120,944 to McVey (hereinafter “MCVEY”) in view of U.S. Pat. No. 5,228,062 to Bingham (hereinafter “BINGHAM”).

As previously noted, upon entry of the present paper, without acquiescing in the propriety of the rejection and solely to expedite prosecution of the application to allowance, claims 7 and 9 will have been cancelled. Thus, Applicant submits that the grounds for the rejection of these claims under 35 U.S.C. § 103 are moot.

With respect to the rejection of claims 1-3, and 5 under 35 U.S.C. § 103 in view of MCVEY and BINGHAM, Applicant respectfully traverses the above-captioned 35 U.S.C. § 103 rejection.

MCVEY generally discloses a modulation system for receiving an input signal 11 and outputting a modulated output signal 12 having an in-phase component I and a quadrature phase component Q (MCVEY, Figure 1). According to MCVEY, the input

signal 11 includes I and Q data bit streams (MCVEY, ¶[0016]). Digital filters 16, 20 filter the input signal 11 into an I digital data stream 17 and Q digital data stream 21 (MCVEY, ¶[0017]). In one embodiment of MCVEY, the I digital data stream 17 passes directly into an I digital data stream 117 and the Q digital data stream passes directly into a Q digital data stream 121 (MCVEY, ¶[0018]). In an alternative embodiment, the I and Q digital data streams 17, 21 pass through an IQ rotator 100 to form the I and Q digital data streams 117, 121 (MCVEY, ¶[0018]).

According to MCVEY, an I offset adjustment summer 80 sums an I offset adjustment with the I digital data stream 117 while a Q offset adjustment summer 88 sums a Q offset adjustment with the Q digital data stream 121 (MCVEY, ¶[0029]). An oscillator 34 generates a constant wavelength (CW) signal at a predetermined frequency, and a ninety degree splitter 36 splits the CW signal into an I CW signal and a Q CW signal wherein the Q CW signal is in quadrature with the I CW signal (MCVEY, ¶[0020]). An I mixer 38 modulates the I CW signal with the adjusted I digital data stream 117 to issue an I modulated signal while a Q mixer 42 modulates the Q CW signal with the adjusted Q digital data stream 121 to issue a Q modulated signal (MCVEY, ¶[0020]). Thereafter, a summer combines the I modulated signal with the Q modulated signal to provide a modulated output signal 12 (MCVEY, ¶[0020]).

According to MCVEY, the modulated output signal 12 includes several errors, such as CW carrier signal leakage, termed I and Q offsets (MCVEY, ¶[0024]). In this regard, IQ correction code 46 generates the magnitudes of the I offset adjustment and the Q offset adjustment to correct the I offset and the Q offset.

In the outstanding Official Action, on page 6, it is asserted that the “I OFFSET” (*i.e.*, the I offset adjustment) of MCVEY corresponds to the in-phase correction signal as recited by independent claims 1 and 5. Additionally, also on page 6, it is asserted that the “Q OFFSET” (*i.e.*, Q offset adjustment) of MCVEY corresponds to the quadrature correction signal as recited by independent claims 1 and 5.

Applicant respectfully disagrees. According to MCVEY, as noted above, the I offset adjustment summer 80 sums the I offset adjustment with the I digital data stream 117 while the Q offset adjustment summer 88 sums the Q offset adjustment with the Q digital data stream 121 (MCVEY, ¶[0029]). The I and Q offsets are corrected with the I and Q offset adjustment summers 80, 88 (MCVEY, ¶[0011]). Therefore, the I offset adjustment is added by the I offset adjustment summer 80 to correct the I offset while the Q offset adjustment is added by the Q offset adjustment summer 88 to correct the Q offset. As noted above, the I and Q offsets indicate the CW carrier signal leakage, *i.e.* a local leak (MCVEY, ¶[0024]). Therefore, *the I offset adjustment of MCVEY is added by the I offset adjustment summer 80 so that the I offset (i.e., the local leak) is corrected, and the Q offset adjustment is added by the Q offset adjustment summer 88 so that the Q offset (i.e., the local leak) is corrected.*

According to Figure 6 and page 21, ¶1 of the present application as filed (¶[0091] of corresponding U.S. Pat. Appl. Pub. No. 2007/0140378), an in-phase DC voltage signal output unit 42I outputs  $\Delta V_0$  so as to restrain the local leak of an in-phase multiplier 14I. Furthermore, a quadrature DC voltage signal output unit 42Q outputs  $\Delta V_0$  so as to restrain the local leak of a quadrature multiplier 14Q. In other words, the output of the in-phase DC voltage signal output unit 42I is added to an I signal to correct the local leak

of the in-phase multiplier 14I, and the output of the quadrature DC voltage signal output unit 42Q is added to a Q signal to correct the local leak of the quadrature multiplier 14 Q.

Therefore, Applicant submits that the I offset adjustment (*i.e.*, “I OFFSET”) of MCVEY corresponds to the output from the in-phase DC voltage signal output unit 42I of the present application, and not the in-phase correction signal of independent claim 1. Additionally, Applicant submits that the Q offset adjustment (*i.e.*, “Q OFFSET”) of MCVEY corresponds to the output from the quadrature DC voltage signal output unit 42Q of the present application, and not the quadrature correction signal of independent claim 1. The in-phase correction signal of independent claim 1 (which the Examiner asserts to correspond to the “I OFFSET” of MCVEY) corresponds to an output from an in-phase correction signal output unit 32I. The quadrature correction signal of independent claim 1 (which the Examiner asserts to correspond to the “Q OFFSET” of MCVEY) corresponds to an output from a quadrature correction signal output unit 32Q.

Accordingly, contrary to the Examiner’s assertion, Applicant respectfully submits that the I offset adjustment (*i.e.*, “I OFFSET”) and the Q offset adjustment (*i.e.*, “Q OFFSET”) of MCVEY fail to disclose or render obvious the in-phase correction signal and the quadrature correction signal as recited by independent claims 1 and 5.

In this regard, according to the embodiments of the present application as recited by independent claims 1 and 5, the in-phase correction signal is added to an in-phase user signal (*i.e.*, I signal) and the quadrature correction signal is added to a quadrature user signal (*i.e.*, Q signal) for determining an error of a quadrature modulation (*see* page 12, line 14 to page 14, line 26 of the present application as filed (¶¶[0048]-[0059] of corresponding U.S. Pat. Appl. Pub. No. 2007/0140378) for an exemplary and non-

limiting method for determining the error of the quadrature modulation on the basis of the in-phase correction signal and the quadrature correction signal).

Contrary to the present application, Applicant respectfully submits that MCVEY fails to disclose that the I offset adjustment (*i.e.*, “I OFFSET”) and the Q offset adjustment (*i.e.*, “Q OFFSET”) are used for determining the error of the quadrature modulation, as taught by the claimed invention. Rather, as mentioned above, the I offset adjustment (*i.e.*, “I OFFSET”) is added so that the I offset (*i.e.*, the local leak) is corrected while the Q offset adjustment (*i.e.*, “Q OFFSET”) is added so that the Q offset (*i.e.*, the local leak) is corrected.

With respect to BINGHAM, Applicant respectfully submits that BINGHAM fails to cure the deficiencies of MCVEY. Rather, BINGHAM is merely relied upon to allegedly disclose the feature of creating a correcting signal with a sinusoidal voltage.

Accordingly, at least in view of the above, Applicant respectfully submits that MCVEY and BINGHAM, whether considered alone or together in any proper combination thereof, fail to disclose or render obvious each and every feature recited by independent claims 1 and 5. Specifically, the combination of MCVEY and BINGHAM are submitted to fail to disclose at least the features of the present application of the in-phase correction signal and the quadrature correction signal as recited in the claimed combinations.

With respect to the rejection of dependent claims 2-3, Applicant submits that these claims are all directly dependent from independent claim 1, which is allowable for at least the reasons discussed *supra*. Thus, these dependent claims are submitted to also be allowable for at least the reasons discussed *supra*. Furthermore, all dependent claims



recite additional features which further define the present invention over the references of record.

At least in view of the above, Applicant respectfully submits that each and every pending claim of the present application (i.e., claims 1-3 and 5) meets the requirements for patentability. Accordingly, the Examiner is respectfully requested to withdraw the outstanding objection and rejections and to indicate the allowance of each and every pending claim in the present application.

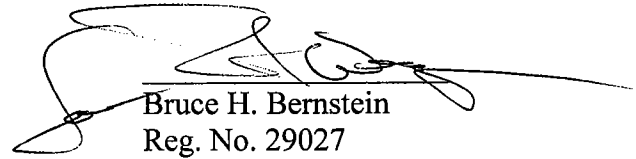
**CONCLUSION**

In view of the fact that none of the art of record, whether considered alone, or in any proper combination thereof, discloses or renders obvious the present invention, and in further view of the above remarks, reconsideration of the Examiner's action and allowance of the present application are respectfully requested and are believed to be appropriate. Applicant notes that the amendments to the claims as set forth herein, *i.e.*, the cancellation of claims 4 and 6-10, are not to be considered, in any way, an acquiesce in the propriety of the outstanding rejections. Rather, Applicant has cancelled claims 4 and 6-10 to advance prosecution of the application to allowance. Moreover, Applicant expressly reserves the right to file a continuing application(s) directed to the subject matter of the cancelled claims.

Should the Commissioner determine that an extension of time is required in order to render this response timely and/or complete, a formal request for an extension of time, under 37 C.F.R. §1.136(a), is herewith made in an amount equal to the time period required to render this response timely and/or complete. The Commissioner is authorized to charge any required extension of time fee under 37 C.F.R. §1.17 to Deposit Account No. 19-0089.

If there should be any questions concerning this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,  
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